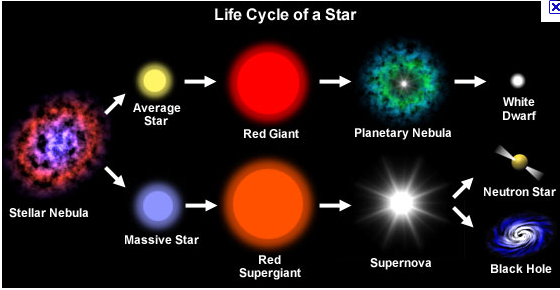
**Review Star s SG 2013**

1. Define and give examples of the following
   1. **Rotation-**  a circular movement of an object around a center (or point) of **rotation**.
   2. **Revolution-** When a planet or moon travels once around an object
   3. **Nebula-** When a planet or moon travels once around an object; In these regions the formations of gas, dust, and other materials "clump" together to form larger masses, which attract further matter, and eventually will become massive enough to form [stars](http://en.wikipedia.org/wiki/Star). The remaining materials are then believed to form[planets](http://en.wikipedia.org/wiki/Planet), and other [planetary system](http://en.wikipedia.org/wiki/Planetary_system) object
   4. **Absolute magnitude-**  It is the[apparent magnitude](http://en.wikipedia.org/wiki/Apparent_magnitude) an object would have if it were at a standard [luminosity distance](http://en.wikipedia.org/wiki/Luminosity_distance) (10 [parsecs](http://en.wikipedia.org/wiki/Parsecs), or 32.6 [light years](http://en.wikipedia.org/wiki/Light_year)) away from the [observe](http://en.wikipedia.org/wiki/Observation)
   5. **Apparent magnitude-** of a celestial body is a measure of its [brightness](http://en.wikipedia.org/wiki/Brightness) as seen by an observer on [Earth](http://en.wikipedia.org/wiki/Earth)
   6. **Parallax-** displacement or difference in the [apparent position](http://en.wikipedia.org/wiki/Apparent_position) of an object viewed along two different lines of sight, displacement or difference in the [apparent position](http://en.wikipedia.org/wiki/Apparent_position) of an object viewed along two different lines of sight,
   7. **Main sequence stars-**  the **main sequence** is a continuous and distinctive band of [stars](http://en.wikipedia.org/wiki/Star) that appears on plots of stellar [color](http://en.wikipedia.org/wiki/Color_index) versus[brightness](http://en.wikipedia.org/wiki/Absolute_magnitude). located along the main sequence at a position determined primarily by its mass, but also based upon its chemical composition and other factors.
   8. **Sunspots- t**emporary [phenomena](http://en.wikipedia.org/wiki/Phenomena) on the [photosphere](http://en.wikipedia.org/wiki/Photosphere) of the [Sun](http://en.wikipedia.org/wiki/Sun) that appear [visibly](http://en.wikipedia.org/wiki/Visible_spectrum) as dark spots and are cooler compared to surrounding regions. They are caused by intense [magnetic](http://en.wikipedia.org/wiki/Magnetism) activity;  prototypical sunspots come in pairs with opposite magnetic polarity;
   9. **Solar Prominences-** a large, bright, gaseous feature extending outward from the [Sun](http://en.wikipedia.org/wiki/Sun)'s surface, often in a[loop](http://en.wikipedia.org/wiki/Coronal_loops) shape.
   10. **Solar flares=-** a sudden brightening observed over the [Sun](http://en.wikipedia.org/wiki/Sun)'s surface or the solar limb, which is interpreted as a large energy release; mainly followed by a colossal [coronal mass ejection](http://en.wikipedia.org/wiki/Coronal_mass_ejection) also known as a CME.[[1]](http://en.wikipedia.org/wiki/Solar_flares#cite_note-Kopp2005-1) The flare ejects clouds of electrons, ions, and atoms through the corona of the sun into space
   11. **Nucleosynthesis -**  process that creates new atomic nuclei from pre-existing [nucleons](http://en.wikipedia.org/wiki/Nucleon), primarily protons and neutrons. The first nuclei were formed about three minutes after the [Big Bang](http://en.wikipedia.org/wiki/Big_Bang), through the process called [Big Bang nucleosynthesis](http://en.wikipedia.org/wiki/Big_Bang_nucleosynthesis). It was then that [hydrogen](http://en.wikipedia.org/wiki/Hydrogen) and [helium](http://en.wikipedia.org/wiki/Helium) formed that became the content of the first [stars](http://en.wikipedia.org/wiki/Stars), and is responsible for the present hydrogen/helium ratio of the cosmos
   12. **1 AU- ㍳**, **au** or**a.u.**) is a [unit](http://en.wikipedia.org/wiki/Unit_of_measurement) of [length](http://en.wikipedia.org/wiki/Length) now defined as exactly149,597,870,700 m (92,955,807.3 mi),[[1]](http://en.wikipedia.org/wiki/Astronomical_unit#cite_note-1) or roughly the mean [Earth](http://en.wikipedia.org/wiki/Earth)–[Sun](http://en.wikipedia.org/wiki/Sun) distance
   13. **Supernova -**  a [stellar](http://en.wikipedia.org/wiki/Star) explosion ; extremely[luminous](http://en.wikipedia.org/wiki/Luminosity) and cause a burst of [radiation](http://en.wikipedia.org/wiki/Radiation" \o "Radiation)that often briefly outshines an entire[galaxy](http://en.wikipedia.org/wiki/Galaxy), before fading from view over several weeks or months. During this short interval a supernova can radiate as much energy as the [Sun](http://en.wikipedia.org/wiki/Sun) is expected to emit over its entire life span;  triggered in one of two ways: (1)by the sudden reignition of [nuclear fusion](http://en.wikipedia.org/wiki/Nuclear_fusion)in a [degenerate star](http://en.wikipedia.org/wiki/Compact_star); or (2)by the collapse of the core of a massive star.
2. **Describe the formation of suns/planets/moons**.- 4.6 [billion](http://en.wikipedia.org/wiki/1000000000_(number)) years ago; collapsing mass collected in the centre, forming the[Sun](http://en.wikipedia.org/wiki/Sun), while the rest flattened into a[protoplanetary disk](http://en.wikipedia.org/wiki/Protoplanetary_disk) out of which the[planets](http://en.wikipedia.org/wiki/Planet), [moons](http://en.wikipedia.org/wiki/Natural_satellite), [asteroids](http://en.wikipedia.org/wiki/Asteroid), and other[small Solar System bodies](http://en.wikipedia.org/wiki/Small_Solar_System_bodies) formed.
3. **When is a protostar formed?** A **protostar** is a large mass that forms by contraction out of the gas of a [giant molecular cloud](http://en.wikipedia.org/wiki/Giant_molecular_cloud) in the[interstellar medium](http://en.wikipedia.org/wiki/Interstellar_medium). The protostellar phase is an early stage in the process of star formation. For a one solar-mass star it lasts about 100,000 years. It starts with a core of increased density in a molecular cloud and ends with the formation of a [T Tauri star](http://en.wikipedia.org/wiki/T_Tauri_star), which then develops into a [main sequence star](http://en.wikipedia.org/wiki/Main_sequence_star)
4. **How are the inner planets different from the outer?** Smaller & rocky **Explain the cause of the difference.** Outer planets are further from the sun & gravity helps them keep their gaseous surface
5. **What other planet shows evidence of having liquid water at one time?** Mars
6. **What information can be gained from the light of stars? (3)** distance, composition, temperature
7. **What device is used to determine the chemical composition of a star?** Spectrograph;  an instrument used to measure properties of[light](http://en.wikipedia.org/wiki/Light) over a specific portion of the[electromagnetic spectrum](http://en.wikipedia.org/wiki/Electromagnetic_spectrum), typically used in [spectroscopic analysis](http://en.wikipedia.org/wiki/Spectroscopic_analysis) to identify materials. typically called a[spectrophotometer](http://en.wikipedia.org/wiki/Spectrophotometer);
8. **What evidence is there of dark matter and dark energy?** Expansion of universe, bending of light
9. **What evidence is there of the big bang? (3)** red shift, cosmic microwave background radiation, composition of universe
10. **What is the absolute age of earth? \_\_**500 M years oldest rock**\_\_\_How is the absolute age of earth determined?** Radiometric dating of uranium-lead dating
11. **Describe the death phase of a star-** H & He fuses to form elements up to Fe; Fe can’t be used as fuel: itcollapses, rebounds as a giant; blows off the external shell and forms a white dwarf; /supergiant will go super nova when it no longer has enough fuel; collapse to a neutron star or black hole
12. **How long should the sun exist?** 10 B **Where are we in this time frame?** About ½ **= 5 B**
13. **Where/how are elements formed?** (nucleosynthesis) , based on the mass of a star and the stage of its lifetime. The Big Bang produced two chemicals, hydrogen and helium. (75% H & 25% He by mass). Heavier elements were produced later by stars through nuclear fusion or when certain massive stars achieve a supernova stage and explode to produce the heaviest elements known
14. **How old is the universe estimated to be?** 13.7 B years **How old is earth?** 4.6 B
15. **How does the sun produce energy?** Fusion –**Describe the type of reaction which causes heat to be produced in the sun.** hydrogen into helium
16. **Intense magnetic fields on the sun can cause (3)** sunspots,solar flares, solar prominences, CME’s
17. **Describe the sunspot/activity cycle of our sun.**  periodic change in the sun's activity (including changes in the levels of solar radiation and ejection of solar material) and appearance (visible in changes in the number of [sunspots](http://en.wikipedia.org/wiki/Sunspot), flares, and other visible manifestations). Solar cycles have an average duration of about 11 years. They have been observed (by changes in the sun's appearance and by changes seen on Earth, such as auroras) for hundreds of years.

**What are its effects?** Solar variation causes changes in [space weather](http://en.wikipedia.org/wiki/Space_weather),[weather](http://en.wikipedia.org/wiki/Weather" \o "Weather), and [climate](http://en.wikipedia.org/wiki/Climate) on Earth

1. **Why do CME’s concentrate at earth’s poles?** a massive burst of [solar wind](http://en.wikipedia.org/wiki/Solar_wind)and magnetic fields rising above the [solar](http://en.wikipedia.org/wiki/Sun) [corona](http://en.wikipedia.org/wiki/Corona) or being released into spac **What problems can they cause?** can disrupt [radio transmissions](http://en.wikipedia.org/wiki/Radio_transmission) and cause damage to [satellites](http://en.wikipedia.org/wiki/Satellites) and [electrical transmission line](http://en.wikipedia.org/wiki/Electrical_transmission_line) facilities, resulting in potentially massive and long-lasting [power outages](http://en.wikipedia.org/wiki/Power_outage)
2. **What forces are involved in objects which orbit in the solar system?** Gravity and inertia
3. **Name and Shape of our galaxy-**spiral; Milky way
4. **Which theory is believed correct about the moon’s formation?** Collision
5. **How is the far side of the moon different than we can see on the side facing us?** More mountainous
6. **Why can we not see the entire galaxy from earth?** We are part of it **What is it called?** Milky Way
7. **Contrast the difference in the life cycles of a high mass vs. a low mass star**- low star, forms red giant, blows off outer layers and collapse to form white dwarf; large suns flare into red supergiants, collapse and then form either a neutron star or a black hole. In roughly 5 billion years, the Sun will cool and expand outward many times its current diameter (becoming a [red giant](http://en.wikipedia.org/wiki/Red_giant)), before casting off its outer layers as a [planetary nebula](http://en.wikipedia.org/wiki/Planetary_nebula) and leaving behind a stellar remnant known as a [white dwarf](http://en.wikipedia.org/wiki/White_dwarf). In the far distant future, the gravity of passing stars will gradually reduce the Sun's retinue of planets. Some planets will be destroyed, others ejected into interstellar space. Ultimately, over the course of [tens of billions](http://en.wikipedia.org/wiki/Timeline_of_the_far_future) of years, it is likely that the Sun will be left with none of the original bodies in orbit around it
8. **Read and use HR diagram. How are stars classified?** Based on luminosity and temperature
9. **Compare the distances between inner and out planets.** The closest planets are fairly close, the further away from the sun, the greater the distance between the planets.
10. **What would a wobble in an orbit mean?** Affected by the gravity of something in the area
11. **How common is ice in our solar system?**
12. Explain the following
    1. **Which star burns the longest?** smaller
    2. **Which burns the hottest?** Blue/violet
    3. **Hottest to coolest star colors-** blue, yellow, red
    4. **What produces a black hole?** Collapse of a massive star.



1. Know the diagram!

Review Star s SG 2013

1. Define and give examples of the following

a. Rotation

b. Revolution

c. Nebula

d. Absolute magnitude

e. Apparent magnitude

f. Parallax

g. Main sequence stars

h. Sunspots

i. Solar Prominences

j. Solar flares

k. Nucleosynthesis

l. 1 AU

m. Supernova

n. inflation

o. protostar

2. Describe the

a. age and formation of the universe (Big Bang)

b. formation of suns/planets/moons.

c. When is a protostar formed?

3. Explain the motion of planets and their orbits based on Kepler and Newton’s law of gravitation.

4. How are the inner planets different from the outer? Explain the cause of the difference.

5. What information can be gained from the light of stars? (3)

6. How do we gain information about the formation of the earth?

7. What device is used to determine the chemical composition of a star?

8. What evidence is there of dark matter and dark energy?

9. What evidence is there of the big bang? (3)

10. What is the absolute age of earth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_How is the absolute age of earth determined?

11. Describe the death phase of a star

12. How long should the sun exist? Where are we in this time frame?

13. Where/how are elements formed?

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20. Name and Shape of our galaxy

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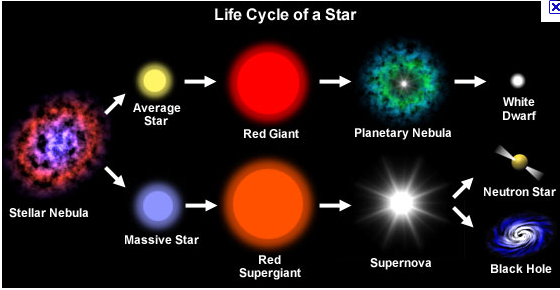
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